

### REMARKS/ARGUMENTS

The Applicants originally submitted Claims 1-21 in the application. In the present response, the Applicants have amended Claims 1, 8 and 15. No claims have been cancelled or added. The Examiner has stated that the subject matter of Claims 6, 13 and 20 is allowable if rewritten in independent form. (Examiner's Action, page 5). The Applicants agree and assert that all of the currently pending claims in the application, Claims 1-21, are allowable.

#### **I. Rejection of Claims 1, 5, 7-8, 12, 14-15, 19 and 21 under 35 U.S.C. §102**

The Examiner has rejected Claims 1, 5, 7-8, 12, 14-15, 19 and 21 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 5,487,095 to Hanz, *et al.* (Hanz). The Examiner asserts that Hanz teaches each and every element of independent Claims 1, 8 and 15. (Examiner's Action, page 2). The Applicants respectfully disagree.

Hanz does not teach, among other things, an integrated circuit package including a first conductor traversing a first signal transmission zone having a first width that provides a characteristic impedance within the first signal transmission zone and a second conductor traversing a second signal transmission zone, coupled to the first conductor, having a second width that provides substantially the characteristic impedance within the second signal transmission zone. (Claims 1, 8 and 15). Hanz teaches a transmission line structure having a substantially constant characteristic impedance along its length so that reflections due to impedance change are negligible, whereby the total signal reflection is reduced. In an embodiment, the microstrip transmission line structure includes a series of connected microstrip sections having different widths forming a

microstrip line on the top layer of a unitized multilayer circuit structure. (Column 1, line 55 to Column 2, line 3).

The different widths of the microstrip sections, however, do not provide a characteristic impedance within a first signal transmission zone and substantially the characteristic impedance within a second signal transmission zone as claimed by the present invention. On the contrary, respective ground planes for each of the microstrip sections are formed between insulating layers of the multilayer circuit structure and dielectrically spaced from the associated microstrip sections to provide a substantially constant impedance along the length of the microstrip line. (Column 3, lines 4-21). Hanz, therefore, does not use widths of the microstrip sections to provide a substantially constant impedance but instead uses advantageously placed ground planes. Thus, Hanz does not teach a first conductor width that provides a characteristic impedance within a first signal transmission zone and a second conductor width that provides substantially the characteristic impedance within a second signal transmission zone as recited in Claims 1, 8 and 15.

Furthermore, the Examiner asserts that each conductor in Hanz may be considered a zone since zone is a broad term. (Examiner's Action, page 2). As amended, however, Claims 1, 8 and 15 more clearly indicate that conductor sections in Hanz may not be considered zones as claimed and described in the specification since the first conductor and the second conductor of the present invention traverse the first zone and the second zone. Hanz, therefore, does not teach a first conductor traversing a first signal transmission zone and a second conductor traversing a second signal transmission zone as recited in Claims 1, 8 and 15.

Since Hanz does not teach each and every element of independent Claims 1, 8 and 15, Hanz does not anticipate Claims 1, 8 and 15 and Claims dependent thereon. Accordingly, the Applicants

respectfully request the Examiner to remove the §102(b) rejection of these Claims and issue an allowance for Claims 1, 5, 7-8, 12, 14-15, 19 and 21.

## **II. Rejection of Claims 1, 2, 5, 7-9, 12, 14-16, 19 and 21 under 35 U.S.C. §102**

The Examiner has rejected Claims 1, 2, 5, 7-9, 12, 14-16, 19 and 21 under 35 U.S.C. §102(e) as being anticipated by U.S. Patent 6,518,663 to James, *et al.* (James). The Examiner asserts that James teaches each and every element of independent Claims 1, 8 and 15. (Examiner's Action, page 3). The Applicants respectfully disagree.

James does not teach, among other things, an integrated circuit package including a first conductor traversing a first signal transmission zone having a first width that provides a characteristic impedance within the first signal transmission zone and a second conductor traversing a second signal transmission zone, coupled to the first conductor, having a second width that provides substantially the characteristic impedance within the second signal transmission zone. (Claims 1, 8 and 15). James teaches an electrical connection web configured on a dielectric substrate and operable at high frequency including a plurality of generally parallel signal lines having graduated width and variable spacings. The graduated widths and variable spacings are cooperatively selected such that a characteristic impedance of the signal lines is approximately the same for each line of the plurality of lines and approximately constant over the length of each signal line whereby signal integrity for each of the lines is enhanced and cross talk between the lines is reduced. (Column 2, lines 58-66).

James, therefore, teaches employing graduated widths and variable spacing to maintain a characteristic impedance over the length of a signal line. Graduated widths, however, differ from

a first width in a first zone and a second width in a second zone as claimed in the present invention since the graduated widths are not a designated width for a particular zone but instead are continually changing throughout the length of the signal lines. (FIGURE 2). Thus, James does not teach a first conductor width that provides a characteristic impedance within a first signal transmission zone and a second conductor width that provides substantially the characteristic impedance within a second signal transmission zone as recited in Claims 1, 8 and 15.

Furthermore, the Examiner asserts that each conductor section in James may be considered a zone since “zone” is a broad term. (Examiner’s Action, page 3). As amended, however, Claims 1, 8 and 15 more clearly indicate that conductor (or signal line) sections in James may not be considered zones as claimed and described in the specification since the first conductor and the second conductor of the present invention traverse the first zone and the second zone. James, therefore, does not teach a first conductor traversing a first signal transmission zone and a second conductor traversing a second signal transmission zone as recited in Claims 1, 8 and 15.

Since James does not teach each and every element of independent Claims 1, 8 and 15, James does not anticipate Claims 1, 8 and 15 and Claims dependent thereon. Accordingly, the Applicants respectfully request the Examiner to remove the §102(e) rejection of these Claims and issue an allowance for Claims 1, 2, 5, 7-9, 12, 14-16, 19 and 21.

### **III. Rejection of Claims 2, 9 and 16 under 35 U.S.C. §103**

The Examiner has rejected Claims 2, 9 and 16 under 35 U.S.C. §103(a) as being unpatentable over Hanz. The Examiner asserts that Hanz teaches each and every element of Claims 2, 9 and 16 except expressly teaching plural transmission lines. The Examiner further asserts, however, that it

would have been obvious to one skilled in the art to have provided a plurality of impedance matched transmission lines connected to the Hanz integrated circuit chip to provide the advantageous benefit of additional transmission paths for providing signals to additional devices as desired. (Examiner's Action, page 4).

As discussed above, however, Hanz does not teach a first conductor traversing a first signal transmission zone having a first width that provides a characteristic impedance within the first signal transmission zone and a second conductor traversing a second signal transmission zone, coupled to the first conductor, having a second width that provides substantially the characteristic impedance within the second signal transmission zone as recited in Claims 1, 8 and 15). Additionally, Hanz does not suggest each and every element of Claims 1, 8 and 15 since Hanz explicitly teaches employing corresponding ground planes to provide constant characteristic impedance. Since Hanz does not teach or suggest each and every element of independent Claims 1, 8 and 15 and Claims 2, 9 and 16 which depend thereon, Hanz does not present a *prima facie* case of obviousness of Claims 2, 9 and 16. Accordingly, Claims 2, 9 and 16 are not unpatentable over Hanz and the Applicants respectfully request the Examiner to withdraw the §103(a) rejection of these Claims and allow issuance.

#### **IV. Rejection of Claims 3-4, 10-11 and 17-18 under 35 U.S.C. §103**

The Examiner has rejected Claims 3-4, 10-11 and 17-18 under 35 U.S.C. §103(a) as being unpatentable over either Hanz or James in view of U.S. Patent No. 6,424,027 to Lamson, *et al.*, (Lamson). The Examiner asserts that Hanz and James do not explicitly teach that a first transmission zone is provided between the substrate and a heat spreader (*see* Claims 3, 10 and 17) or that the

second transmission zone is provided between the substrate and a metallic stiffener (*see* Claims 4, 11 and 18). The Examiner cites Lamson to teach an integrated circuit package including that stiffeners/heat spreaders are used in integrated circuit chips and asserts that it would have been obvious to combine the teachings of Lamson with the teachings of Hanz or James. (Examiner's Action, pages 4-5).

As discussed above, however, Hanz fails to teach or suggest and James fails to teach each and every element of independent Claims 1, 8 and 15. James also fails to suggest each and every element of Claims 1, 8 and 15 since James explicitly teaches employing a graduated width signal line and variable spacing to provide approximately a constant characteristic impedance. (Column 2, lines 58-67). Lamson does not cure this deficiencies of Hanz or James but instead is directed to filtering out high frequency of a transmitted signal or clock employing narrow and wide traces. (Column 3, lines 16-21). Since Claims 3-4, 10-11 and 17-18 also include a first conductor traversing the first signal transmission zone having a first width and providing a characteristic impedance within the first signal transmission zone and a second conductor traversing the second signal transmission zone having a second width and providing substantially the characteristic impedance within the second signal transmission zone, the combination of either Hanz or James and Lamson also fails to teach or suggest each and every element of Claims 3-4, 10-11 and 17-18. Hanz or James and Lamson, therefore, in view of the knowledge of one skilled in the art do not establish a *prima facie* case of obviousness of Claims 3-4, 10-11 and 17-18. Accordingly, the Applicants respectfully request the Examiner to withdraw the §103(a) rejection and issue allowance for Claims 3-4, 10-11 and 17-18.

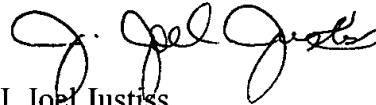
**V. Conclusion**

In view of the foregoing remarks, the Applicants now see all of the Claims currently pending in this application to be in condition for allowance and therefore earnestly solicit a Notice of Allowance for Claims 1-21.

The Applicants request the Examiner to telephone the undersigned attorney of record at (972) 480-8800 if such would further or expedite the prosecution of the present application.

Respectfully submitted,

**HITT GAINES & BOISBRUN, P.C.**

A handwritten signature in black ink, appearing to read "J. Joel Justiss", written in a cursive style.

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